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Plantation Cleaning Trials

Summer and Fall 1985

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Department of Forests, Mines and Energy
Timber Management Branch

INTRODUCTION

The Timber Management Branch of the New Brunswick Department of Forests, Mines and Energy (Formerly Natural Resources) undertook plantation cleaning trials in the fall of 1982 and during the summer and fall of 1983. Previous reports have described the methods used, compared costs and reported on initial and resulting responses of the vegetation (Plantation Tending Trials October 1982; New Brunswick Plantation Cleaning Trials 1981, 1982, 1983; The Effects of Manual Plantation Cleaning and The Effects of Manual Plantation Cleaning II). This report summarizes productivity costs of motor-manual plantation cleaning during the 1985 summer and fall seasons on selected areas where hardwood and shrub competition densities are relatively low - an attempt to find practical and economic alternatives to chemical herbicide control. Data for the 1982 and 1983 trials are included in Table 1 for comparison purposes only.

METHODS

Six plantations ranging from two (2) to seven (7) years old were selected because of their relative low densities of woody stem competition. Strips thirty (30) meters wide were established and the average height for the planted trees was determined. Competition was defined as any species that was equal to or greater in height than the planted trees - the densities of which were recorded before cleaning.

The saw operators were instructed to clean all competition from between the planted trees and open areas where planted trees were missing were avoided - the operators were only timed for the actual working time involved in each area and down time was not included.

Costs were calculated based on the saw operators wage of $7.50 per hour plus allowance for gas and oil, protective clothing, and other items necessary to operate the saws. A proportionate cost is also included for the supervisors wages based on a crew of eight saw operators. A calculation of twenty-five (25) per cent was also included to allow for down time.

RESULTS

Table 1 summarizes the results of the 1985 cleaning trials. There was considerable variation in densities of woody stems between trial areas and each site was significantly different from every other site in the trials. As a result no direct comparisons were made attempting to compare densities to productivity costs. There is a general trend evident, however, to indicate that the greater the number of stems of woody competition the greater the cost to treat the area.

When comparing summer versus fall cleaning there were significant differences between summer and fall costs. In each comparison the costs were less for fall cleaning - a factor which is a direct result of the planted trees being located with greater ease due to leaf fall. Other factors increasing overall productivity include better working conditions with regard to cooler days and a lack of bothersome insects.

Current costs of chemical herbicide treatment average approximately $135 per hectare. Some costs illustrated in Table 1 compare favourably with herbicide but the long term results of manual cleaning should be considered before recommending this technique as an alternative to chemical weed control.

Additional data will be gathered in 1986 to monitor productivity and costs on a wider variety of sites. Subsequently an attempt will be made to identify specific competition levels in plantations where manual cleaning may be an alternative to herbicide spray.

Table 1. Plantation Cleaning Trials - summer and fall 1985.

	FALL SEASON[1] STEMS/HA					SUMMER SEASON STEMS/HA				
	HWD	SWD	Total	Other[2]	Fixed Cost/Ha Plus 25%[3]	HWD	SWD	Total	Other	Fixed Cost/Ha Plus 25%
West Long Lake (IP-59-82)	27492	34	27526	-	$258.08	26453	120	26573	8697	$552.25
Shin Creek Road (406994983BP)	13000	1760	14760	-	$124.05	8420	280	8700	3400	$202.50
Bathurst (IP-8-79)	3467	67	3534	-	$174.56	7000	-	7000	-	$203.59
Clearwater (P-52-82)	4067	3466	7533	-	$75.64	15733	1400	17133	3400	$191.31
Durham (IP-41-78)	-	-	-	-	-	8194	4774	12968	129	$280.29
Bayles Lake (IP-125-81)	5455	11394	16849	-	$256.50	-	-	-	-	-
	Summer and Fall 1983									
Bigger Brook (IP-59-79)	[4]		19200	(83800)	$309.94	[4]		14300	230000	$363.38
Lunts Brook (P-42-80)			13100	(377000)	$480.94			12900	376000	$716.06
Brown Road (IP-12-80)			18900	(289000)	$384.75			12300	320000	$566.44
Harrtown (IP-20-82)			18900	(141000)	$256.50			22500	176000	$395.44
	OCTOBER 1982 [5]									
Brown's Mtn (P-40-81)	16230	1250	17480	(136000)	$249.02					
Anderson Rd. (IP-42-78)	26535	310	26845	(168950)	$355.89					
Dineen Woods (P-39-81)	43160	2500	45660	(152000)	$254.36					

NO CLEANING

1. After leaf fall
2. Raspberry, fireweed, ferns, etc.
3. Allows for downtime
4. Hwd and Swd compiled together - therefore totals only
5. Radius cleaning - figures adjusted

Note: Stems/ha includes only those stems equal to or greater in height than the planted trees.